

Features

Unregulated Converters

- Single Output Rail
- Industry Standard Pinout
- 1kVDC & 2kVDC Isolation
- High Efficiency for Low Power Applications
- UL94V-0 Package Material
- Toroidal Magnetics
- Fully Encapsulated
- Efficiency to 80%

ECONOLINE

DC/DC-Converter

RM & RL Series

Selection Guide

| Part Number | Input Voltage (VDC) | Output Voltage (VDC) | Output Current (mA) | Efficiency (%) |
|-------------------------------|----------------------------|----------------------|---------------------|----------------|
| SIP 4 DIP8 (2kV) | (VDC) | (VDC) | (mA) | (%) |
| RM-xx1.8S RL-xx1.8S (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 1.8 | 139 | 70 |
| RM-xx3.3S RL-xx3.3S (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 3.3 | 76 | 65-70 |
| RM-xx05S RL-xx05S (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 5 | 50 | 66-72 |
| RM-xx09S RL-xx09S (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 9 | 28 | 70-72 |
| RM-xx12S RL-xx12S (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 12 | 21 | 70-72 |
| RM-xx15S RL-xx15S (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 15 | 17 | 70-76 |
| RM-xx24S RL-xx24S (H) | 1.8, 3.3, 5, 9, 12, 15, 24 | 24 | 10 | 70-80 |

xx = Input Voltage

Specifications (Core Operating Area)

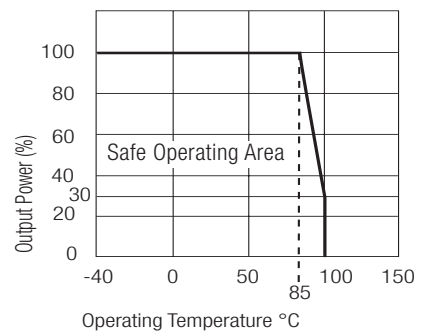
| | | | |
|---|---|---------------------|---------------------------------------|
| Input Voltage Range | | | ±10% |
| Output Voltage Accuracy | | | ±5% |
| Line Voltage Regulation | | | 1.2%/1% of Vin max. |
| Load Voltage Regulation (10% to 100% full load) | 1.8V, 3.3V output types | | 20% max. |
| | 5V output type | | 15% max. |
| | 9V, 12V, 15V, 24V output types | | 10% max. |
| Output Ripple and Noise (20MHz limited) | | | 50mVp-p max. |
| Operating Frequency | | | 50kHz min. / 90kHz typ. / 105kHz max. |
| Efficiency at Full Load | | | 65% min. / 75% typ. |
| No Load Power Consumption | | | 45mW min. / 75mW typ. / 105mW max. |
| Isolation Voltage | (tested for 1 second) | | 1.000VDC min. |
| Rated Working Voltage | (long term isolation) | | see Application Notes |
| Isolation Voltage | H-Suffix (tested for 1 second) | | 2.000VDC min. |
| Rated Working Voltage | H-Suffix (long term isolation) | | see Application Notes |
| Isolation Capacitance | | | 25pF min. / 82pF max. |
| Isolation Resistance | | | 10 GΩ min. |
| Short Circuit Protection | | | 1 Second |
| Operating Temperature Range (free air convection) | | | -40°C to +85°C (see Graph) |
| Storage Temperature Range | | | -55°C to +125°C |
| Relative Humidity | MSL Level 1 | | 95% RH |
| Package Weight | RM types | | 1.4g |
| | RL types | | 1.8g |
| MTBF (+25°C) | } Detailed Information see Application Notes chapter "MTBF" | using MIL-HDBK 217F | 1327 x 10 ³ hours |
| (+85°C) | | using MIL-HDBK 217F | 302 x 10 ³ hours |

0.25 Watt SIP4 & DIP8 Single Output



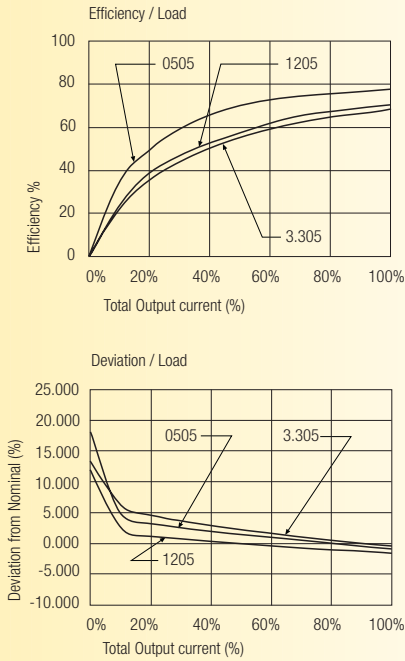
RECOM

Derating-Graph (Ambient Temperature)

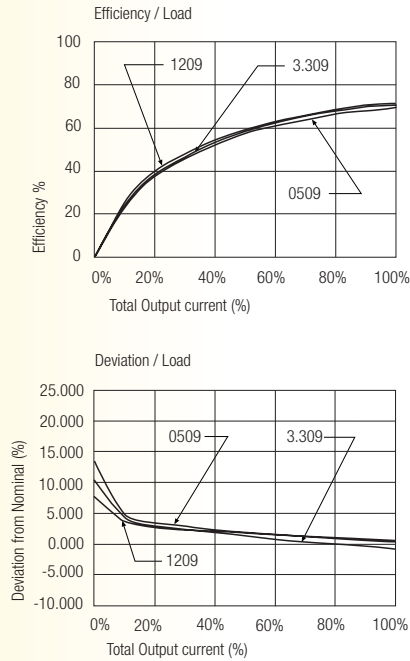


Typical Characteristics

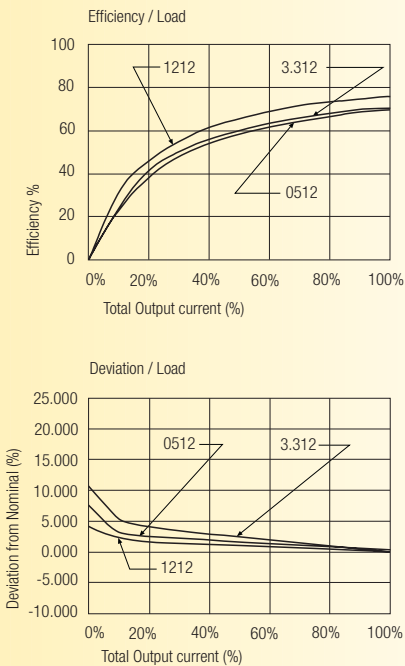
RM/RL-xx05S



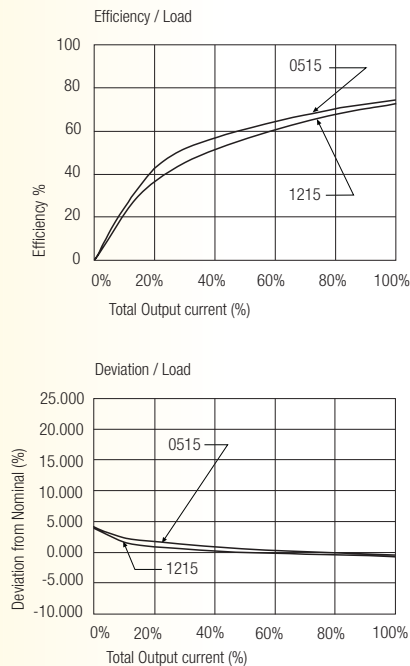
RM/RL-xx09S



RM/RL-xx12S

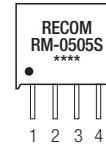
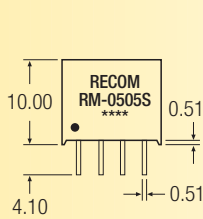


RM/RL-xx15S

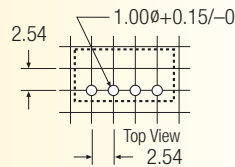
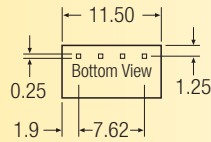


Package Style and Pinning (mm)

4 PIN SIP Package



Recommended Footprint Details

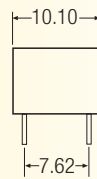
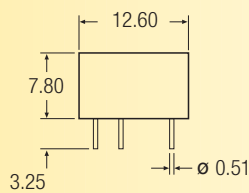


RM Pin Connections

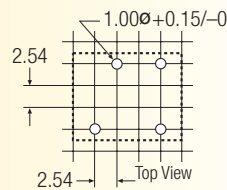
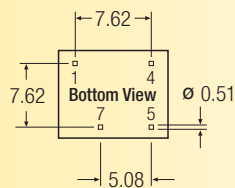
| Pin # | Single |
|-------|--------|
| 1 | -Vin |
| 2 | +Vin |
| 3 | -Vout |
| 4 | +Vout |

XX.X ± 0.5 mm
XX.XX ± 0.25 mm

8 PIN DIP Package



Recommended Footprint Details



RL Pin Connections

| Pin # | Single |
|-------|--------|
| 1 | -Vin |
| 4 | +Vin |
| 5 | +Vout |
| 7 | -Vout |

XX.X ± 0.5 mm
XX.XX ± 0.25 mm